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The rationale and techniques for developing skimming and scanning skills with college students are discussed, and it is noted that perfecting these skills involves changing some basic attitudes towards reading such as the ideas that one needs to read every word and that increasing speed decreases comprehension. Lengthy passages in regular college texts were chosen as effective materials to develop skimming and scanning skills, and exercises were developed for skimming for main ideas and for scanning for details and/or specific words or phrases. Techniques for improving skimming and scanning skills which include controlling the amount of time spent on exercises, analyzing the author's organization, and reading the first and last paragraphs are briefly presented. Preliminary studies indicated that including skimming and scanning training in short rapid-reading courses resulted in increased rate gains and that it may produce more flexible readers. References are included (RT)

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IMPROVING FLEXIBILITY THROUGH SKIMMING AND SCANNING TRAINING

If the various purposes for reading were to be lined up along a rate-continuum, most of us would agree that tasks like proof-reading and reading poetry would provide anchor points on the "slow" end of the continuum and skimming and scanning skills represent the fastest reading tasks. Theoretically, flexibility in reading means that an individual has learned to adjust his reading rate and techniques to his purpose for reading. However, in reality investigators have not generally found that rates of reading vary much despite differences in difficulty level and purpose. For example, Kershner (1964) surreptitiously measured the reading rates of adults on passages of widely variant difficulty levels and found that rapid readers altered their speed little regardless of the difficulty level, while slow readers

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tended to read even more slowly on difficult passages. (This suggests that slow readers were more flexible in adapting reading rates to difficult material than were rapid readers.) Nason and McDonald (1964) reiterated the findings that instructions to students to alter their reading rates do not result in changes and that reading rate and approach to reading seem to be habitual. They further proposed that if more flexible approaches to reading are taught, rate changes will result and described how these changes can be measured with their Reading Versatility Test. Cases presenting four patterns of flexibility/non-flexibility are presented but data to support their contention that flexibility training will alter rate are not given.

Despite the paucity of evidence that flexibility can be developed, it is still viewed by college reading specialists as the major objective of their reading improvement programs. However, the typical college reading program focuses its efforts on improving rapid reading skills (usually on fiction material) and on improving comprehension on study-type reading skills. In both of these areas, words per minute and percentage correct on multiple-choice questions are the criteria used. In most workbooks, skimming and scanning skills are dealt with only minimally--that is, in exercises like scanning the telephone book for numbers or scanning ads in a newspaper column. Applying skimming and scanning skills systematically to textbook tasks is considered undesirable, with the possible exception of encouraging students to skim topic headings prior to reading their texts. (It is interesting that this technique as a part of the SQ3R method is generally considered a "study skill" rather than a reading tech-

nique and is not included in many college reading courses.) At any rate, the sample of reading purposes which are developed in the typical college reading course tend to be quite restricted. Rarely is much emphasis given, for example, to proof-reading or skimming and scanning. So perhaps one reason for the failure of such courses to develop flexible readers is the restricted range of reading purposes for which the students are trained.

In the process of developing and testing materials for a workbook on skimming and scanning skills,* I have had the opportunity to look carefully at some of the assumptions concerning reading flexibility and to observe students and test out ideas on how these skills might be enhanced.

For the purposes of this paper, skimming is defined as locating the main idea of a selection quickly. Scanning is defined as the process of locating specific facts quickly.

I agree with the assumption that reading rate is an attitude. For a student to perfect his skimming and scanning skills, he must often change his basic attitudes toward reading. In fact, to develop the appropriate mental set so that he can learn to skim and scan, he must overcome a number of superstitions about the act of reading. In my book, I describe six myths that must be overcome if the student is to learn skimming and scanning skills. First, there is the myth that one must read every word. To be sure, some reading tasks do require this, such as poetry reading or proof-reading or reading the directions for assembling a stereo-system; but as I have previously mentioned, these purposes re-

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* Maxwell, Martha J. Skimming and Scanning Improvement. (In press, McGraw-Hill Book Company.)

quire slow reading, not skimming and scanning. Many words in traditional English sentences do not convey meaning--they are included because they represent the "etiquette of correct English composition." For example, articles, redundant phrases, etc., all can be minimally stressed if not ignored without losing the main thread of the argument. To help the student overcome this myth, exercises are provided similar to those in traditional rapid reading texts such as paring down paragraphs to their "bare bones," the essential words which convey the meaning. (Telegraphing a message is an example, or writing headlines.) A second myth that must be overcome is the idea that reading a passage once is enough to fix it eternally in your memory. Many college students suffer from this misconception. To overcome this, one should skim for the gist or major ideas and then read more carefully to fill in the gaps. Questioning, or testing oneself as one reads, and the importance of follow-up activities such as note-taking and review are also stressed. (SQ3R or SQ4R methods of studying.) The student is encouraged to avoid "an unthinking Pavlovian rereading of a chapter" and instead to develop selective reading techniques which will build the confidence he needs to be able to locate major premises and specific ideas quickly.

A third myth is the belief that you need machines to increase reading speed. To be sure, there are those individuals who need to be pushed by some external force and prefer that force to be an impersonal machine, but for most sutdents the types of reading machines used most frequently for this purpose interfere with the development of skimming and scanning skills because they limit the visual field to a single line or group of

words. Even the EDL machine designed to aid skimming and scanning has proved more distracting than beneficial to students since the light dropping down the page distracts the student from his task. However, turning the light off and using the machine as a timing device is effective. (But, let's face it, there are cheaper timing devices.) The best way to increase reading rate or learn skimming and scanning skills is to force yourself to read faster. Reliance on a machine to do this for you creates other problems such as dependence on the machine and inability to transfer the skills that might be developed, provided you can concentrate enough on the machines to develop the skills.

A fourth myth involves the feeling that it is somehow sinful to skip passages in reading. Some authorities say that this guilt feeling stems from the old attitudes toward the Bible as The Word; but it may also result from one's early reading experiences and the reading techniques demanded and reinforced by elementary teachers--if you have been scolded or embarrassed for overlooking trivia, your confidence in your ability to discriminate main points from details may have been shattered. Many students suffer from this feeling...no matter how dull or irrelevant the written material, they feel guilty if they don't read it all. Making decisions as to what part of a text you should spend your time on is a new idea to many students, as is the fact that they can develop the capacity to identify the important concepts quickly.

A fifth myth is, "There's something about my eyes that keeps me from skimming or reading fast." Provided that the student has no severe visual pathology, this statement almost always is false. The student must recognize that it's more likely his mind than his vision which keeps him from

reading rapidly. Most students tend to read far more slowly than they need to and will respond to suggestions and techniques that will help increase the rate at which they can get the ideas they need from their reading assignments.

A sixth myth is, "If I read too rapidly, my comprehension will drop." This is a particularly difficult attitude to overcome, since if the person panics and worries about whether he's comprehending or not, his comprehension will naturally drop, because he's not paying attention to the context of the material he's reading. Reassuring the student that skimming and scanning skills used appropriately can greatly enhance his comprehension and retention of difficult materials and demonstrating how this works may help him overcome this fear.

Do College Students Need Skimming and Scanning Skills?

The Skimming and Scanning Improvement Program grew out of several needs. First, we found that many college students reported that they used skimming or scanning skills in their textbook studying. Furthermore, we asked a random sample of freshmen if they were interested in taking a course to improve their skimming and scanning skill and the majority indicated that they were. Thirdly, in attempting to teach students to skim and scan we found that there were few materials or exercises available on the appropriate college level. (Maxwell, 1968)

What Materials Are Appropriate for Skimming and Scanning Training?

Through trial and error, we found that lengthy passages from regular college textbooks in different subject areas were the most meaningful to students. Selections were made from social, physical, and biological

sciences, essays, and bibliographic and indexed material. Most of the selections were from freshmen and sophomore courses. In attempting to develop exercises for junior and senior courses, we ran into the problem of technical vocabulary, particularly in the science subjects, which made it virtually impossible for students who lacked the background in the terminologies developed in the more basic courses to understand the concepts. So for advanced level materials we selected general articles from Science and Scientific American, which had fewer unexplained technical terms.

Four types of exercises were developed for each selection: skimming for the main idea, scanning for details, scanning for words or phrases or technical vocabularly, and general comprehension questions for more intensive reading.

In pretesting our material, we found that many students (ranging from freshmen to faculty members) were totally unable to locate main ideas quickly as required in the skimming exercises. (The only faculty exceptions were the English instructors who evidently developed this facility through years of practice searching for thesis statements in freshman compostitions.)

When Do You Use Skimming and Scanning?

Skimming and scanning techniques should be used for pre-reading any textbook. The more difficult the text the more important it is to get an over-view of the chapter, and to determine how it relates to the preceding and subsequent chapters. In reading and studying science texts, the skimming preview is equally important since the chapters are often so close packed with facts that a student could easily lose himself in the details

and overlook the major ideas. Scanning is an important skill to master in science too, for the vocabulary terms are so crucial to comprehension that if the student is unaware of the definitions before he attempts to read the chapter, he places himself in virtually the same position as one who attempts to read a foreign language book by looking up every other word (and promptly forgetting it). By scanning for the most important terms, and reading around them, one can usually find the definition without looking it up in a glossary, since terms are usually defined as they are introduced in context. So knowing the key vocabulary concepts, one's task in learning the major ideas and discovering the relevant supporting details is greatly simplified.

Scanning skills also have value as a warm-up for more intensive reading (i.e., looking for an interesting idea or passage may serve to motivate you to complete an otherwise dull chapter).

Both skimming and scanning skills are valuable too in reviewing the selection to make sure significant concepts have been mastered and the details are clear. If the student is able to build adequate questions in his pre-skimming or intensive reading stages, he then can skim and scan to verify his answers. Also this serves to help him fix relevant points in his memory so that he can retain them longer.

Scanning is also invaluable in locating specific information needed in writing research papers.

Techniques for Improving Skimming and Scanning Skills

The results of a series of studies we have conducted suggest that the most effective technique for teaching a student to skim and scan is to control the amount of time he spends on the exercises. Unless he is forced

to skim in order to locate main ideas, he won't. He must be constantly pressured by time. Introducing specific techniques for scanning (such as moving one's eyes in a Z-pattern) appears to interfere with the development of scanning skills, at least during the initial stages of learning, for the student apparently concentrates on what his eyes are doing rather than the ideas for which he is searching. As he becomes habituated to fixing his mind on a specific detail and moving his eyes rapidly to locate it, he is then able to experiment with different methods. Skimming skills which involve searching for the main premise of a selection, are aided by teaching the student to analyze the writer's organizational pattern. Such techniques as reading the first two and last two paragraphs, looking at topic headings and topic sentences, analyzing paragraph construction, etc., make it simpler to guide the student to use these cues in locating the main idea.

There are some cautions that need to be observed in teaching skimming and scanning. First, the student must be certain of his purpose and the kind of information he is seeking prior to starting. Studies have shown that students who are scanning for answers to questions on specific details are likely to locate the information which they are seeking but are not apt to retain other content. Thus closing one's mind in advance by concentrating on a few specifics is not always a good study skill, but it is useful in special situations like verifying facts to be used in a term paper, or looking for additional references. Skimming for major points and concepts prior to reading, helps the student develop a conceptual framework to organize and retain the facts that he will gain on

a more intensive reading. Furthermore, post-reading scanning for facts or details as a review is a most useful technique to enhance retention. It is well to caution the student that the information gained from skimming and scanning alone is usually not sufficient to enable him to pass college course examinations. However, developing effective skimming and scanning techniques will help him to reduce the amount of time he will need to spend on intensive reading.

At the University of Maryland, we have completed several studies using the skimming and scanning materials as a part of a short 10-hour reading effectiveness workshop. Students receiving skimming and scanning training along with more traditional techniques in rapid reading (Controlled Reader Exercises and SRA cards) showed greater improvement in reading effeciency (rate times comprehension) than students using the traditional materials alone. Although further studies are needed to cross-validate these results, they do suggest that skimming and scanning training may enhance rapid reading gains.

Summary

This paper describes the rationale of a new program which helps students learn to apply skimming and scanning skills to college textbook reading and study. Realistic, lengthy selections have been compiled from social science, science and other disciplines and exercises written to train students to skim for main ideas, scan for details and read for maximum comprehension. Preliminary studies suggest that including skimming and scanning training in short rapid reading courses results in increased rate gains and may produce more flexible readers.

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